

What is claimed is:

1. A method of sending feedback information in a fast automatic repeat request for frequency division duplex or time division duplex communication that form an overall wireless communication system having uplink traffic and downlink traffic transmitted in a plurality of slots forming a frame, comprising the steps of:

receiving packets at a receiver, where the received packets are then de-interleaved, de-ratematched, decoded and monitored for error detection; and

acknowledging the received packets by transmitting feedback data to the sender of the packets, said acknowledgement comprising the reservation of a plurality of slots in the uplink or downlink dedicated physical channel radio frame for the feedback data.

2. A method according to claim 1, where there are N slots per frame and wherein the feedback data is transmitted in slots N_1 to N_2-1 and the data in the uplink or downlink direction are transmitted in slots 1 to N_1-1 and in slots N_2 to N , where $N_1 > 1$ and $N_2 > N_1 + 1$.

3. A method according to claim 2, wherein the value of N_1 is based upon the time offset between uplink and downlink channels as well as based upon the time required for de-interleaving, de-ratematching, decoding and cyclical redundancy checking.

4. A method according to claim 3, wherein the number of slots reserved for feedback data, $(N_b = N_2 - N_1)$ is a function of the size of the feedback packet.

1 5. A method according to claim 1, wherein the value of N_1 is based
2 upon the time offset between uplink and downlink channels as well as based
3 upon the time required for de-interleaving, de-ratematching, decoding and
4 cyclical redundancy checking.

1 6. A method according to claim 5, wherein the number of slots
2 reserved for feedback data, ($N_{fb} = N_2 - N_1$) is a function of the size of the
3 feedback packet.

1 7. A method according to claim 1, wherein the plurality of slots in
2 the uplink or downlink dedicated physical channel radio frame for the feedback
3 data is used for the feedback data only. ✓

1 8. A method of sending feedback information in a fast automatic
2 repeat request for frequency division duplex or time division duplex
3 communication that form an overall wireless communication system having
4 uplink traffic and downlink traffic, transmitted in a plurality of slots forming a
5 frame, comprising the steps of:

6 receiving packets at a receiver, where the received packets are
7 then de-interleaved, de-ratematched, decoded and monitored for
8 error detection; and

9 using less than all of the dedicated physical control channel
10 (DPCCH) bits in at least some of the slots for transmitting the
11 feedback data to the sender.

1 9. A method according to claim 8, wherein if more than a few
2 feedback bits are required, then the spreading factor (SF) of the DPCCH is
3 reduced, thereby creating more bits per time slot for use at least in part as
4 feedback bits.

1 10. A method according to claim 8, wherein the feedback data to be
2 transmitted to the sender is punctured into bits of the pilot, feedback (FBI) or
3 transmit power control (TPC) fields in at least one time slot.

1 11. A method according to claim 8, wherein the feedback data to be
2 transmitted to the sender is punctured into bits of the transport format
3 combination indicator (TFCI) field if the number of transport format
4 combinations needed during the connection leaves part or whole of the TFCI
5 field unused.

1 12. A method of sending feedback information in a fast automatic
2 repeat request for frequency division duplex or time division duplex
3 communication that form an overall wireless communication system having
4 uplink traffic and downlink traffic transmitted in a plurality of slots forming a
5 frame, comprising the steps of:

6 receiving packets at a receiver, where the received packets are
7 then de-interleaved, de-ratematched, decoded and monitored for
8 error detection; and

9 acknowledging the received packets by transmitting feedback
10 data in a feedback channel to the sender of the packets, wherein
11 the feedback channel is generated in the same manner as a
12 channel is generated for compressed mode.

1 13. A method according to claim 12, wherein the feedback channel
2 is generated by puncturing into fields.

1 14. A method according to claim 13, wherein the fields are control
2 fields.

1 15. A method according to claim 14, wherein the fields are control
2 fields and/or data fields.

1 16. A method according to claim 13, wherein the feedback data can
2 be delayed and therefore presented in a later frame.

1 17. A method according to claim 12, wherein the feedback channel
2 can be generated by higher layer scheduling.